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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

September 8, 1970

Mr. Thomas Cahill
Environmental Engineer
Chester County Health Department
326 N. Walnut Street
West Chester, Pennsylvania 19380

Dear Mr. Cahill:

On June 10, 1970 at 9:30 AM I collected the following data and made observations of the aquatic life in a reach of the West Branch of the Brandywine Creek where Route 340 crosses this stream, Chester County, Pennsylvania.

pH= 7.9

Specific Conductance @ 25°C = 80 Micromhos; water temperature 64°

Aquatic Insects

MAYFLIES:- including STENONEMA sp., BAETIS sp. and EPHEMERELLA sp.

CADDIS FLIES: - HYDROPSYCHE sp.

FISH: - JOHNNY DARTERS (Minnow)

Also on this date at 10:00 A.M. I collected the following data and made observations of the aquatic life in a reach of Birch Run Creek. Birch Run Creek is a tributary of the West Branch of the Brandywine, Chester County, Pa. The data collection and observations were made on Birch Run Creek at a point fifty feet upstream from its confluence with the West Branch of the Brandywine.

pH= 7.0

Specific conductance @ 25°C = 60 Micromhos; water temperature = 62° F

Aquatic Insects:

MAYFLIES: No BAETIS sp., but some EPHEMERELLA sp.

STONE FLIES: 1 ACRONEURIA sp. This organism displayed an inversion of the alimentary canal. The alimentary canal is the digestive tract from the mouth to the anus.

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No CADDISFLIES.

FISH:

- 1 small Johnny Darter (Minnow)
- 1 dead common sucker found in reverse pool of stream.

These observations of the aquatic life on Birch Run indicate that this stream prior to June 10, 1970 had received some form of toxic material as evidenced by the complete inversion of the alimentary canal in the stone fly, Auoneuria sp. This inversion means that the entire alimentary canal is found outside the organism body and protruding from the mouth. Scientific studies have documented this condition in Auoneuria sp. when this organism is subjected to toxic materials.

The dead common sucker found in a reverse pool on Birch Run also indicates that some toxic material has been present in the stream. Scientific studies have shown that the Baetis May Flies have less tolerance to toxic materials relative to other forms of aquatic insects. It should be noted again in this regard that there were no Baetis sp. organisms observed in Birch Run at the reach sixty feet above its confluence with the West Branch of the Brandywine. It should also be noted that there were no Caddis Flies nor Stenonema sp. observed at this point. It is my opinion that these forms should have been found under normal stream conditions at this point on Birch Run.

Sincerely yours,

Bruce W. Lium
Bruce W. Lium
Limnologist

BWL:jcr

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